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ABSTRACT

The report evaluates the Non-Public Schools Learning Resource Centers Program, an approach to providing remedial reading and mathematics instruction to Chapter 1 eligible students who were underachieving in math and/or reading and whose difficulties had not been remedied by normal school services. The program featured pullout services in individual or small group sessions using a diagnostic prescriptive approach. Pre- and posttesting on the California Achievement Test as well as rate of gain analysis on the extent of academic progress expected of enrollees based on previous and actual performance were computed. Results revealed that project subjects in three of nine grade levels generally equaled or exceeded national norming group gains in reading. In addition, subjects in six grade levels generally exceeded performance expectations based on prior achievement records. In mathematics, program subjects in four of the seven grade levels analyzed generally equaled or exceeded norming group standards. Subjects in five of the grades generally surpassed levels expected of them via prior years' performance. The program was seen to be generally successful in achieving its purpose, and its continuation was recommended. (CL)

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# EVALUATION OF
# THE NON-PUBLIC SCHOOLS
# LEARNING RESOURCE CENTERS PROGRAM

## 1984-1985

**Funded Under Chapter 1 of the Education Consolidation and Improvement Act**

* * * * * *

**Prepared by**

**Dr. Nicholis Poulos**

**Evaluation and Testing Department**
**Office of Instructional Improvement**
**Detroit Public Schools**

**September, 1985**

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## PROGRAM FACTS

| | |
|---|---|
| Title | : Non-Public Schools Learning Resource Centers Program |
| Funding Year | : 1984-85 |
| Purpose of the Program | : To provide individualized remedial reading and mathematics instruction to target students in Grades K-12. Prescriptive learning was provided to meet specific needs as determined by diagnostic and standardized testing. |
| Features of the Program | : Supplied instruction to Chapter 1 eligible underachievers whose learning difficulties and lack of achievement had not been remedied via normal school activities. Enrollees were pulled out of their regular classrooms and sent to specially-equipped Learning Resource Centers where they received concentrated instruction for 40 minutes per day. A diagnostic/prescriptive technique was used. |
| Funding Source | : Chapter 1, E.C.I.A. |
| Funding Level | : $1,318,130 |
| Number of Students Served | : 1600 |
| Staffing Pattern | : 1 Director (part-time)<br>3 Coordinating Teachers<br>38 Teachers<br>41 Paraprofessionals |
| Instructional Time | : 40 minutes per day, 5 days per week for 34 weeks |
| Materials and Equipment | : Various types of instructional hardware to meet individual needs of children |
| First Year of Funding | : 1965-66 |

NON-PUBLIC SCHOOLS LEARNING RESOURCE CENTERS PROGRAM

(Executive Summary)

## Purpose and Features

The Non-Public Schools Learning Resource Centers Program was intended to provide instruction in remedial reading and mathematics to Chapter 1 eligible students who were underachievers in reading and/or math and whose extreme learning difficulties and lack of achievement had not been remedied via normal school activities. Encompassing such youths in Grades K-12, the program was essentially a pullout type in which enrollees were given concentrated instruction for forty minutes per day in specially-equipped Learning Resource Centers at each non-public school. A diagnostic/prescriptive technique was used as a basic instructional tool. The evaluation sought answers to the following:

> What effect did the program treatment have upon the enrollees with regard to their performance in reading and math in relationship to national norming group attainment and also their attainment as compared to prior performance expectations?
>
> Was the program successful in achieving its purpose?

## Evaluation Methodology

Pretest (April, 1984) and posttest (April, 1985) California Achievement Test means of grade equivalent scores and standard deviations in reading and mathematics were computed for program enrollees in each grade level. The extent of pre- and post gains in grade equivalent units was determined, and comparative analyses were made relative to national norms standards as well as enrollee attainment in relationship to prior performance expectations. Standard deviations were calculated in order to denote the spread of enrollees' scores in each grade level.

Numbers and percents of participants who attained a minimum pre-post growth of one year in reading and mathematics were also determined.

## Findings and Recommendations

In reading, it was found that the project participants in three of the nine grade levels analyzed generally equaled or exceeded national norming group gains. Furthermore, the participants in six of the grade levels generally exceeded performance expectations based upon their prior records of achievement. On an overall individual student basis, 46 percent of the participants equaled or surpassed norming group attainment.

In mathematics, the findings indicated that the program enrollees in four of the seven grade levels under analysis generally equaled or exceeded norming group standards. It was found also that the pupils in five of the grades generally surpassed levels expected of them via prior years' performance. Overall, 54 percent of the target students equaled or surpassed the performance of the national norming group.

Based on the findings, it was concluded that the program was generally successful in achieving its purpose. Hence it was recommended that the project should continue to remain operational during the 1985-86 school year.

However the paucity of available pre- and post CAT data regarding target students in the high school grades, particularly in mathematics, precluded an opportunity to conduct a viable analysis of group progress at these levels. Therefore it was also recommended that a future focus of the program should be directed toward obtaining more pre-post reading and math information concerning these students, e. g., through expanding the project services which are currently provided for high school enrollees.

Evaluator: Dr. Nicholis Poulos

# EVALUATION OF
# THE NON-PUBLIC SCHOOLS LEARNING RESOURCE CENTERS PROGRAM
# 1984 - 85

Funded Under Chapter 1 of the Education
Consolidation and Improvement Act

Prepared by
Dr. Nicholis Poulos

Office of Instructional Improvement
Evaluation and Testing Department
Detroit Public Schools

September, 1985

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# INTRODUCTION

The Non-Public Schools Learning Resource Centers Program provided instruction in remedial reading and mathematics to Chapter 1 eligible students who were underachievers in reading and mathematics and whose learning difficulties and lack of achievement had not been remedied via normal school activities.

Encompassing students in Grades K-12, the program was a pullout type in which participants were reassigned from a normal classroom situation for approximately forty minutes per day to specially equipped in-school rooms called Learning Resource Centers. A diagnostic/prescriptive technique, designed and geared to recognize and deal with students having extreme learning problems, was used as a basic instructional method.

Thus a concerted effort was made by Learning Resource Center personnel to not only diagnose the particular learning difficulty of each enrollee but also to prescribe methods intended to facilitate or improve the acquisition of skills which would lead ultimately to higher achievement levels in reading and math.

Instruction was given on either a one-to-one basis or to very small groups of enrollees by a certificated teacher assisted by one to three trained paraprofessionals. Since the time-on-task factor was increased substantially, intensive individualized prescriptive learning could be effected to meet the identifiable needs of the target students by means of various testing functions. Perceptual training and individualized reading and mathematics materials were used to deal with the particular needs of each enrollee in the program.

Approximately 1700 students were participants in the 1984-85 activities. Operational in the Archdiocese Schools of Detroit, Michigan, the project was staffed by one director (part-time), three teacher coordinators, 38 teachers, and 41 paraprofessionals.

## THE EVALUATION PLAN

The following procedures were employed for the purpose of attempting to assess the effectiveness of the Non-Public Schools Learning Resource Centers Program in terms of progress made toward reading and mathematics achievement.

1. Pretest and posttest California Achievement Test means and standard deviations of grade equivalent scores in reading and mathematics were obtained for enrollees in Grades 1-12. The extent of pre- and post gain, or retrogression, in grade equivalent units was computed, analyzed, and described. The performance of the national norming group was used as a guide for purposes of comparative performance.

2. A parallel rate-of-gain analysis was conducted to obtain information regarding the extent of academic progress expected of program enrollees on the basis of previous performance and their actual performance on the posttest in 1985.

3. A final facet of the evaluation entailed an analysis regarding the number and percent of project participants in each grade level who attained a pre-post growth of one full year or more.[1]

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[1]With regard to all facets of this evaluation, the scores of only those students of whom both pre- and posttest data in reading and/or mathematics were available were included in the analyses and descriptive procedures.

## ANALYSIS OF THE DATA AND FINDINGS

The following section is addressed to the analysis of the data and related findings and is based upon the plan of evaluative procedures cited previously. Hence the information in the ensuing tables and descriptive narrative refer to data generated by these procedures and is based on the available pre- and post California Achievement Test scores of the program enrollees in reading and in mathematics.

### Reading

#### Grade 1

The data in Table 1 (p. 4) indicated that the Grade 1 project participants for whom pretest and posttest data were available attained a gain in reading from the 47th percentile on the pretest to the 54th percentile on the posttest.[1]

#### Grade 2

It was implied by the data (Table 1) that the Grade 2 enrollees achieved an average pre-post gain of 0.5 (five months) in grade equivalent units in reading comprehension. The pretest mean of scores was 1.7 (one year and seven months), and the posttest mean was 2.2 (two years and two months). Therefore, the pre-post gain fell short of that of the national norming group by a margin of five months.

With reference to achievement based on a rate-of-gain criterion, it was expected that on the basis of previous performance, the Grade 2 participants would attain an average gain of seven months. The actual gain, however, was five months, thus falling short of the performance expected by a margin of two months.

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[1]The test scores of first-graders were equated from raw scores to percentiles and cited thusly. This was done in the interests of achieving a medium of pre-post Kindergarten-first grade score compatibility as per State requirements.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF PRETEST AND POSTTEST GRADE EQUIVALENT READING SCORES OF NON-PUBLIC SCHOOL ENROLLEES ON THE CAT

| Grade | N[1] | Pretest (1984) | | Posttest (1985) | | Gain in G.E.U.[3] | | Rate of Gain | |
|---|---|---|---|---|---|---|---|---|---|
| | | M | SD[2] | M | SD | Target | Norms | Expected | Actual |
| 1 | 22 | 47.0* | ---- | 54.0* | ---- | --- | --- | --- | --- |
| 2 | 44 | 1.7 | 0.47 | 2.2 | 0.90 | 0.5 | 1.0 | 0.7 | 0.5 |
| 3 | 53 | 1.9 | 0.61 | 2.5 | 0.75 | 0.6 | 1.0 | 0.5 | 0.6 |
| 4 | 39 | 2.9 | 0.91 | 3.6 | 1.04 | 0.7 | 1.0 | 0.7 | 0.7 |
| 5 | 49 | 3.3 | 1.06 | 4.3 | 1.31 | 1.0 | 1.0 | 0.6 | 1.0 |
| 6 | 61 | 4.2 | 1.05 | 5.3 | 1.02 | 1.1 | 1.0 | 0.7 | 1.1 |
| 7 | 55 | 5.0 | 1.37 | 5.8 | 1.57 | 0.8 | 1.0 | 0.7 | 0.8 |
| 8 | 28 | 5.3 | 1.55 | 7.0 | 1.82 | 1.7 | 1.0 | 0.6 | 1.7 |
| 9 | 20 | 6.0 | 1.24 | 6.7 | 2.18 | 0.7 | 1.0 | 0.6 | 0.7 |
| 10 | 31 | 6.7 | 1.61 | 7.0 | 1.94 | 0.3 | 1.0 | 0.7 | 0.3 |
| 11 | 11 | 6.9 | 2.85 | 8.2 | 2.09 | 1.3 | 1.0 | 0.6 | 1.3 |
| 12 | 3 | 9.2 | 0.92 | 9.8 | 0.40 | 0.6 | 1.0 | 0.8 | 0.6 |

[1]N = number of program enrollees.

[2]SD = standard deviation

[3]G.E.U. = grade equivalent units.

* = performance of Grade 1 pupils cited in percentile rank.

Grade 3

The information in Table 1 suggested that the project participants in Grade 3 posted an average pre-post gain in reading of 0.6 (six months) in grade equivalent units. It was implied by the data that the enrollees attained a mean of 1.9 (one year and 9 months) on the pretest and 2.5 (two years and five months) on the posttest, a margin of four months below norming group attainment.

Based on expected versus actual achievement, the data implied that the third-graders surpassed the gain expected (0.5) by the extent of one month.

Grade 4

The data in Table 1 indicated that the Grade 4 enrollees attained a G.E.U. reading gain of 0.7 (seven months) from pretest to posttest. The pretest mean of scores was 2.9 (two years and nine months), and the posttest mean was 3.6 (three years and six months). Hence the performance level of the Grade 4 participants was three months shy of the performance of the norming group.

On the basis of expected and actual achievement, it was inferred that the Grade 4 participants equaled the gain (0.7) expected of them.

Grade 5

It was implied by the information (Table 1) that the program enrollees in Grade 5 attained a pre- and post gain in reading of 1.0 (one year). The pretest mean was 3.3 (three years and three months). The posttest mean was 4.3 (four years and three months). Thus the gain was identical to that of the national norming group.

From the viewpoint of expected versus actual gain, the data suggested that the fifth-graders were expected to attain a mean of 0.6 (six months). Since they attained a full year in growth, their performance surpassed expectations by a four-month margin.

Grade 6

In regard to progress made by pupils in Grade 6, the data (Table 1) indicated that the target pupils achieved an average gain in reading of 1.1 (one year and one month). It was implied that a mean of 4.2 (four years and two months) was attained on the pretest, and a mean of 5.3 (five years and three months) was attained on the posttest. The gain exceeded that of the norming group by the extent of one month.

On a rate-of-gain basis, the data inferred that the actual gain of 1.1 (one year and one month) surpassed the gain anticipated by a margin of four months.

Grade 7

The data in Table 1 disclosed that the participants in Grade 7 attained a gain of 0.8 (eight months). The pretest mean of scores was 5.0 (five years), and the posttest mean was 5.8 (five years and eight months). Therefore, the seventh graders' performance was two months below national norms.

Based on an expected-actual gain criterion, it was found that the actual gain exceeded the gain expected by a one-month margin.

Grade 8

It was shown (Table 1) that the Grade 8 program enrollees attained a pre-post gain of 1.7 (one year and seven months). The pretest mean was 5.3 (five years and three months), and a mean of 7.0 (seven years) was attained on the posttest. Thus the gain of the eighth graders surmounted the gain of the norms group by the extent of seven months.

In reference to expected versus actual performance, the data implied that the actual gain (1.7) surpassed the expected gain (0.6) by one year and one month.

Grade 9

The information depicted in Table 1 indicated that the Grade 9 target group

achieved a mean of 6.0 (six years) on the pretest and a mean of 6.7 (six years and seven months) on the posttest. Hence the gain of the Grade 9 students fell short of the norming group gain by a margin of three months.

On the basis of rate-of-gain, it was inferred that the actual posted gain (0.7) of the participants exceeded their expected gain (0.6) by one month.

Grade 10

The information in Table 1 implied that the Grade 10 enrollees attained a pre- and post gain in reading of 0.3 (three months). The pretest mean of scores was 6.7 (six years and seven months), and the posttest mean was 7.0 (seven years). Consequently, the gain of the project tenth-graders was below the gain of the norming group by the extent of seven months.

As to expected versus actual gain, the data indicated that the tenth graders were expected to achieve a mean of 0.7 (seven months). Their actual attainment was only three months, below expectations by a four-month margin.

Grades 11-12

Due to the relatively small number of target students for whom both pretest and posttest data were available, the information concerning these students, although cited in Table 1, was not considered relevant for description in this phase of the evaluation.

Growth of One Year or More

The concluding evaluative facet with regard to reading performance was concerned with the number of project participants who had attained, as an optimal goal, a pre-post gain of at least one month for each month of program participation. Data regarding this facet are cited in Table 2 on the following page.

The data in Table 2 indicated that, overall, from a total of 394 target

TABLE 2

NUMBERS AND PERCENTS OF ENROLLEES WHO ATTAINED A MINIMUM OF ONE YEAR'S GROWTH (1.00 G.E.U.) IN READING ON THE CAT

| | Reading | | |
|---|---|---|---|
| Grade | Number of Enrollees | Number Achieved 1.00+ | Pct. |
| 1 | -- | -- | -- |
| 2 | 44 | 12 | 27 |
| 3 | 53 | 17 | 32 |
| 4 | 39 | 16 | 41 |
| 5 | 49 | 29 | 59 |
| 6 | 61 | 36 | 59 |
| 7 | 55 | 24 | 44 |
| 8 | 28 | 19 | 68 |
| 9 | 20 | 8 | 40 |
| 10 | 31 | 14 | 45 |
| 11 | 11 | 4 | 36 |
| 12 | 3 | 1 | 33 |
| Totals | 394 | 180 | 46 |

students for whom pretest and posttest information was available, 180 (46 percent) of the participants succeeded in attaining a minimum growth of 1.00 (one year) in reading.

As to the performance of enrollees by individual grade level, the data implied that more than one-half of the participants in Grades 5 and 6 (59 percent) and in Grade 8 (68 percent) achieved the growth cited. It was seen also that 40-45 percent of the enrollees in Grades 4, 7, 9, and 10, and also 32-36 percent of the participants in Grades 3, 11, and 12 attained a pre-post growth of one year or more. Twenty-seven percent of the participants in Grade 2 performed similarly.

## Mathematics

### Grade 1

The information in Table 3 (following page) indicated that the program enrollees in Grade 1 for whom both pretest and posttest data were available achieved a gain in mathematics from the 32nd percentile on the pretest to the 37th percentile on the posttest.[1]

### Grade 2

It was inferred by the data (Table 3) that the target pupils attained a mean of scores in math of 1.6 (one year and six months) on the pretest and a mean of 2.4 (two years and four months) on the posttest. Therefore, the average gain of 0.8 (eight months) fell below the gain of the norming group by the extent of two months.

In regard to gain expected by virtue of previous performance versus actual gain, the data suggested that the actual performance of the pupils (0.8) surpassed the performance expected (0.6) by a margin of two months.

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[1] Ibid, p. 3.

TABLE 3

MEANS AND STANDARD DEVIATIONS OF PRETEST AND POSTTEST GRADE EQUIVALENT MATHEMATICS SCORES OF NON-PUBLIC SCHOOL ENROLLEES ON THE CAT

| Grade | N[1] | Pretest (1984) | | Posttest (1985) | | Gain in G.E.U.[3] | | Rate of Gain | |
|---|---|---|---|---|---|---|---|---|---|
| | | M | SD[2] | M | SD | Target | Norms | Expected | Actual |
| 1 | 16 | 32.0* | ---- | 37.0* | ---- | --- | --- | --- | --- |
| 2 | 27 | 1.6 | 0.30 | 2.4 | 0.61 | 0.8 | 1.0 | 0.6 | 0.8 |
| 3 | 25 | 2.2 | 0.48 | 3.2 | 0.64 | 1.0 | 1.0 | 0.7 | 1.0 |
| 4 | 22 | 3.1 | 0.72 | 3.9 | 0.83 | 0.8 | 1.0 | 0.8 | 0.8 |
| 5 | 16 | 3.7 | 0.66 | 4.9 | 1.10 | 1.2 | 1.0 | 0.7 | 1.2 |
| 6 | 27 | 4.6 | 1.03 | 5.8 | 0.98 | 1.2 | 1.0 | 0.8 | 1.2 |
| 7 | 42 | 5.6 | 0.94 | 6.4 | 1.43 | 0.8 | 1.0 | 0.8 | 0.8 |
| 8 | 13 | 6.3 | 1.48 | 7.7 | 1.50 | 1.4 | 1.0 | 0.8 | 1.4 |
| 9 | 8 | 6.3 | 1.28 | 8.2 | 0.69 | 1.9 | 1.0 | 0.7 | 1.9 |
| 10 | 6 | 5.7 | 1.39 | 6.6 | 1.00 | 0.9 | 1.0 | 0.5 | 0.9 |
| 11 | 0 | --- | ---- | --- | ---- | --- | --- | --- | --- |
| 12 | 2 | 8.2 | 0.57 | 8.7 | 0.57 | 0.5 | 1.0 | 0.7 | 0.5 |

[1] N = number of program enrollees.

[2] SD = standard deviation.

[3] G.E.U. = grade equivalent units.

* performance of Grade 1 pupils cited in percentile rank.

Grade 3

The data (Table 3) indicated that the Grade 3 participants achieved a gain in mathematics of 1.0 (one year). The pretest mean of scores was 2.2 (two years and two months), and the posttest mean was 3.2 (three years and two months). Hence the performance of the Grade 3 enrollees equaled the performance of the national norming group.

On the basis of expected and actual achievement, it was implied that the target third-graders' actual gain exceeded the expected gain (0.7) by a three-month margin.

Grade 4

The information in Table 3 inferred that the project pupils in Grade 4 attained a gain of 0.8 (eight months) from pretest to posttest. The pretest mean was 3.1 (three years and one month), and the posttest mean was 3.9 (three years and nine months). Thus the performance of the fourth-graders fell short of national norms by the extent of two months.

As to expected versus actual gain, it was inferred that the Grade 4 enrollees equaled the gain (0.8) expected.

Grade 5

It was indicated by the data (Table 3) that the Grade 5 participants achieved a mean of 3.7 (three years and seven months) on the pretest and a mean of 4.9 (four years and nine months) on the posttest. The pre-post gain (1.2) surpassed the gain of the national norming group by a margin of two months.

On a rate-of-gain basis, the data reflected that the actual gain (1.2) of the target group exceeded the gain expected by the extent of five months.

Grade 6

The Table 3 data indicated that the program enrollees in Grade 6 posted a

mean in math of 4.6 (four years and six months) on the pretest. A mean of 5.8 (five years and eight months) was attained on the posttest. Therefore, the performance of the sixth-graders surpassed that of the norming group by two months.

From a rate-of-gain perspective, it was shown that the enrollees surpassed the gain expected (0.8) by a margin of four months.

Grade 7

The information inferred (Table 3) that the Grade 7 target group attained a pre-post gain in mathematics of 0.8 (eight months). A mean of 5.6 (five years and six months) was attained on the pretest, and a mean of 6.4 (six years and four months) was achieved on the posttest. Accordingly, the posted gain was two months shy of national norming group gain.

As to rate-of-gain, it was suggested by the data that the expected (0.8) and actual gains were identical.

Grade 8

In regard to the performance of Grade 8 youths, the data (Table 3) indicated that the enrollees achieved an average pre- and post math gain of 1.4 (one year and four months). The pretest mean of scores was 6.3 (six years and three months). The posttest mean was 7.7 (seven years and seven months). Thus the gain exceeded that of the norming group by the extent of four months.

With respect to rate-of-gain, the performance of the eighth graders surpassed the performance expected (0.8) by a margin of six months.

Grades 9-12

Although data generated by target students in Grades 9, 10, 11, and 12 were cited in Table 3, the relatively small number of participants for whom pre- and post information was available precluded a meaningful description of the mean scores.

Growth of One Year or More

It was indicated by the data in Table 4 (next page) that, compositely, from a total of 188 project participants for whom pre- and post information was available, 102 (54 percent) of the participants attained a minimum gain of 1.00 (one year) in mathematics.

According to attainment by individual grade level, the data implied that more than three-fifths of the enrollees in Grades 3, 5, 6, 8, and 9 achieved at least one year in growth, and one-half of the enrollees in Grades 10 and 12 performed similarly. Forty to forty-four percent of the youths in Grades 2 and 7, and 27 percent of the pupils in Grade 4 achieved a year or more in growth.

TABLE 4

NUMBERS AND PERCENTS OF ENROLLEES WHO ATTAINED A MINIMUM OF ONE YEAR'S GROWTH (1.00 G.E.U.) IN MATHEMATICS ON THE CAT

| | Mathematics | | |
|---|---|---|---|
| Grade | Number of Enrollees | Number Achieved 1.00+ | Pct. |
| 1 | -- | -- | -- |
| 2 | 27 | 12 | 44 |
| 3 | 25 | 18 | 72 |
| 4 | 22 | 6 | 27 |
| 5 | 16 | 11 | 69 |
| 6 | 27 | 17 | 63 |
| 7 | 42 | 17 | 40 |
| 8 | 13 | 9 | 69 |
| 9 | 8 | 8 | 100 |
| 10 | 6 | 3 | 50 |
| 11 | 0 | -- | -- |
| 12 | 2 | 1 | 50 |
| Totals | 188 | 102 | 54 |

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A tri-phased evaluative approach was employed in the attempt to determine the effectiveness of the Non-Public Schools Learning Resource Centers Program for the 1984-85 school year.

The CAT pretest means of reading and mathematics scores of the program enrollees in each grade level were compared to the means generated by the posttest scores, and the gains in grade equivalent units were calculated, analyzed, and described.[1] National norming group gains were used for comparative purposes.

A rate-of-gain determination was also made to obtain an additional perspective of growth in which the actual posttest mean of scores for each grade level was compared to the mean expected on the basis of the target students' previous records of attainment in reading and math.[1]

An analysis was also made relative to the numbers and percents of individual project participants in each grade level (as well as compositely) who attained an optimal growth of one year or more.

### Reading

In reference to reading achievement, it was found that the participants in Grades 5, 6, and 8 generally equaled or surpassed the gain of the national norming group. Enrollees in Grade 7 fell short of the optimal goal by a margin of two months, and target students in Grades 4 and 9 were below national norms by a three-month margin.

Conversely, the participants in Grade 10 fared poorest in this regard, having attained a pre-post growth of only three months. Pupils in Grades 2 and 3 achieved moderately higher gains of five and six months, respectively.

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[1] Data regarding means of scores of participants in Grades 11 and 12, although cited in Table 1, were not included in this analysis due to the small numbers of students for whom pre- and posttest information was available.

On the basis of actual versus expected achievement via the rate-of-gain methodology, it was found that the program enrollees in six of the nine grade levels analysed generally exceeded the gains expected of them. Enrollees in Grade 4 equaled the growth expected, whereas enrollees in Grades 2 and 10 failed to achieve the anticipated gains.

As to progress made by individual target students, the findings indicated that, overall, 46 percent of the students equaled or surpassed the optimal normal growth standard of one month's gain for each month of program participation.

Mathematics

Relative to pre- and posttest achievement in mathematics, it was found that the project participants in Grades 3, 5, 6, and 8 generally equaled or exceeded the national norming group gain. Target students in Grades 2, 4, and 7 fell below national norms by the extent of two months.

Based upon the rate-of-gain method of determining progress, the findings implied that the enrollees' gains in all of the grades under analysis equaled or surpassed the gains expected by virtue of previous performance.

In reference to the performance of individual participants, it was found that, compositely, 54 percent of the students achieved or exceeded the optimal growth criterion of one month's gain for each month of program participation.

Conclusions

The tri-phased analyses of the available pre- and post data indicated that with respect to reading, the program enrollees generally made marked progress toward closing the gap in both reading and mathematics in relationship to national norming group achievement. In this regard the findings implied that the attainment of the enrollees in mathematics was particularly noteworthy.

From a rate-of-gain perspective, it was found that the actual gains in reading of the target students in approximately three-quarters of the grade levels

which were analyzed generally equaled or surpassed the gains expected on the basis of prior performance and, similarly, in all of the grade levels in mathematics.

In reference to the number of individual participants whose academic growth equaled or exceeded that of the national norming group, it was found that 46 percent of the students attained a gain of a year or more in reading, and 54 percent achieved the performance level cited in mathematics.

Recommendations

Based on the procedures employed to assess the effectiveness of the program as per the evaluation plan, the Non-Public Schools Learning Resource Centers Program was considered to have been successful and should continue to remain operational in essentially its present form during the 1985-86 school year.

However, the scarcity of available pre- and post CAT data regarding target students in the high school grades, particularly in mathematics, precluded an opportunity to conduct a viable analysis of group progress at these levels. Hence it is recommended that a future focus of the program should be directed toward obtaining more pre-post reading and math information concerning these students, e. g., through expanding the project services which are currently provided for high school enrollees.